

REMARKS

Favorable reconsideration of the application is respectfully requested in light of the amendments and remarks herein.

Upon entry of this amendment, claims 1-8 will be pending. Claims 1-8 have been amended. No new matter has been added.

Objection to Claims 1-8

In Section 3 of the Office Action, the Examiner has objected to claims 1-8 because the limitation "the stored changes" is unclear. Claims 1-8 have been amended as suggested by the Examiner, thereby obviating the objection.

§102 Rejection of Claim 2

In Section 4 of the Office Action, claim 2 stands rejected under 35 U.S.C. §102(b) as being anticipated by Kuroda et al. (U.S. Patent No. 4,564,766; hereafter referred to as "Kuroda"). Claim 2 has been amended to address the rejection.

In the Background section of the Specification, it was stated that "[i]n case of dealing with a still image in the camcorder, since two fields of the interlace-scanned image sensing signal form an image corresponding to one frame, a time delay between fields causes deterioration of image quality. Therefore, recording/reproducing of a still image is carried out by converting an interlaced signal into a progressive scan signal. ... In contrast, in an electronic still camera specialized for still images, a still image sensing signal with high quality obtained by progressive scanning from a solid image sensor capable of progressive scanning is recorded onto a recording medium. ... In a solid image sensor capable of progressive scanning, a still image

sensing signal with high quality can be obtained by progressive scanning. However, as shown in FIG. 12, since charge storing is carried out in one frame period, the image is blurred when a moving object is picked up. A problem hence appears in that the image cannot be quite still.”

Background of the Specification, page 2, lines 1-15.

To address the above-described shortcomings of the conventional video camera apparatus, embodiments of the present invention provide methods and apparatuses for a single-unit video and image sensing, capable of obtaining still images without blurring using a progressive scan mode.

For example, the image sensing method of claim 2, as presented herein, includes:

controlling an electronic shutter of a solid image sensor which outputs an image sensing signal in a progressive scan mode at a field cycle of a standard television system used as a basic cycle, said solid image sensor including a plurality of pixel sensors,

processing charges accumulated on said plurality of pixel sensors as the image-sensing signal including: in said progressive scan mode, discharging the charges accumulated and stored for a first field of a particular frame before storing the charges accumulated for a second field of the particular frame; and reading out the stored charges of the second field in next two fields of a subsequent frame; and

outputting the image sensing signal from the solid image sensor in the progressive scan mode,

wherein an image-sensing signal in said progressive scan mode is outputted for generating still images.

(emphasis added)

Therefore, the method claim 2 including: “*controlling* an electronic shutter . . . which outputs an image-sensing signal in a progressive scan mode; *processing* charges, including: in said progressive scan mode, discharging the charges accumulated and stored for a first field . . . before storing the charges . . . for a second field . . . ; *outputting* the image sensing signal . . . in

the progressive scan mode, wherein the image-sensing signal in said progressive scan mode is outputted for generating still images.” In other words, each step of method claim 2 is performed in a progressive scan mode, which allows the capturing of still images without blurring, thereby achieving the invention’s objective.

By contrast, Kuroda discloses a method of driving a solid state pickup device using an interlace scan mode, rather than a progressive scan mode. *See Kuroda, col. 2, lines 38-40.* Kuroda discusses a period of storing charges in alternate odd and even rows, and the timing of discharging these stored charges. *Kuroda, Abstract, Col. 3, line 15- col. 5, line 28.* A progressive scan mode is not discussed as part of this process. *Kuroda, Abstract, Col. 3, line 15- col. 5, line 28.* Therefore, Kuroda fails to disclose all the limitations of claim 2, including “controlling an electronic shutter . . . which outputs an image-sensing signal in a progressive scan mode; processing charges, including: in said progressive scan mode, discharging the charges accumulated and stored for a first field . . . before storing the charges . . . for a second field . . . ; outputting the image sensing signal . . . in the progressive scan mode, wherein the image-sensing signal in said progressive scan mode is outputted for generating still images.” Thus, Kuroda fails to anticipate claim 2. Further, Kuroda fails to achieve the invention’s objective for a single-unit video and image sensing method, capable of obtaining still images without blurring using a progressive scan mode.

Based on the foregoing discussion, it is maintained that claim 2 should be allowable over Kuroda. Accordingly, it is submitted that the Examiner’s rejection of claim 2 based upon 35 U.S.C. §102(b) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

§ 103 Rejection of Claims 1, 3-8

In Section 5 of the Office Action, claims 1, and 3-8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kuroda in view of Inuiya (U.S. Patent No. 6,222,986).

Claims 1 and 3-8 have been amended to address the rejection.

The structure of video camera apparatus claim 1, for capturing video and still images as frames, includes:

a solid image sensor having an electronic shutter for outputting an image-sensing signal in a progressive scan mode, said solid image sensor including a plurality of pixel sensors configured to process charges accumulated on the pixel sensors as the image-sensing signal,

wherein the image-sensing signal in said progressive scan mode is outputted for generating still images,

wherein, in said progressive scan mode, the charges accumulated and stored for a first field of a particular frame are discharged before the charges accumulated for a second field of the particular frame are stored, and

wherein the stored charges of the second field are read out in next two fields of a subsequent frame; and

drive control means for controlling the electronic shutter of the solid image sensor at a field cycle of a standard television system used as a basic cycle, thereby to output the image sensing signal from the solid image sensor in the progressive scan mode.

(emphasis added)

In summary, apparatus claim 1 includes: “*a solid image sensor* having an electronic shutter for outputting an image-sensing signal in a progressive scan mode, . . . *wherein* the image-sensing signal in said progressive scan mode is outputted for generating still images, *wherein, in said progressive scan mode*, the charges accumulated and stored for a first field of a particular frame are discharged . . . ; and *drive control means* for controlling the electronic shutter . . . thereby to output the image sensing signal from the solid image sensor in the progressive scan mode.” Therefore, claim 1 contains substantially similar claim limitations,

including the progressive scan mode limitations, as present in claim 2. Based on the foregoing discussion regarding claim 2, and because claim 1 closely parallels claim 2, claim 1 should also be allowable over Kuroda.

Further, it was indicated in Section 5 of the Office Action, “it is well known that a video camera using CCD image sensor can be implemented to capture both video and still images as taught by Inuiya” *Office Action*, page 5. Yet even if Inuiya were to disclose these features, Inuiya in combination with Kuroda still would not teach or suggest the remaining limitations of claim 1 not taught by Kuroda. Therefore, it is submitted that Kuroda and Inuiya, individually or in combination, fail to teach or suggest: “*a solid image sensor having an electronic shutter for outputting an image-sensing signal in a progressive scan mode, . . . wherein the image-sensing signal in said progressive scan mode is outputted for generating still images, wherein, in said progressive scan mode, the charges accumulated and stored for a first field of a particular frame are discharged . . . ; and drive control means for controlling the electronic shutter . . . thereby to output the image sensing signal from the solid image sensor in the progressive scan mode,*” as described in claim 1. Thus, Kuroda or Inuiya, alone or in combination, fail to teach or suggest all the limitations of claim 1.

Based on the foregoing discussion, it is maintained that claim 1 should be allowable over Kuroda and Inuiya. Since claims 3-8 closely parallel and contain substantially similar limitations as claim 1, claims 3-8 should also be allowable over Kuroda and Inuiya.

Accordingly, it is submitted that the Examiner’s rejection of claims 1, and 3-8 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

Conclusion

In view of the foregoing, entry of this amendment, and the allowance of this application with claims 1-8 are respectfully solicited.

In regard to the claims amended herein and throughout the prosecution of this application, it is submitted that these claims, as originally presented, are patentably distinct over the prior art of record, and that these claims were in full compliance with the requirements of 35 U.S.C. §112. Changes that have been made to these claims were not made for the purpose of patentability within the meaning of 35 U.S.C. §§101, 102, 103 or 112. Rather, these changes were made simply for clarification and to round out the scope of protection to which Applicant is entitled.

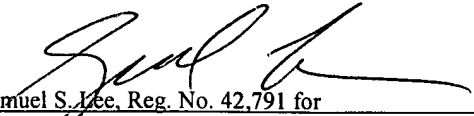
In the event that additional cooperation in this case may be helpful to complete its prosecution, the Examiner is cordially invited to contact Applicant's representative at the telephone number written below.

The Commissioner is hereby authorized to charge any insufficient fees or credit any overpayment associated with the above-identified application to Deposit Account 50-0320.

Respectfully submitted,

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